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## THE TUBERCULOSIS CONTROL PROGRAM IN HALIFAX

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THE tuberculosis control program in Halifax is, at the moment, an interesting mixture of past, present, and future. The past is fascinating from a historical sense but will be outlined only to create a background. The present might well be termed the transition period; or, if one might make an analogy, the clutch is released, we are coasting, and are about to shift into high gear. For the future, we visualize an efficient and effective control program for tuberculosis.

The City of Halifax was founded some 200 years ago, specifically in 1749. Through the years it has garnered, among other things, a high mortality from tuberculosis. This disease has been, and still is, a major public health problem in the Province of Nova Scotia, and within Nova Scotia there is no area where the apparent problem is greater than in its capital city, Halifax. This, I believe, is partly inherent in its history and its historical as well as present-day functions. The city is a splendid seaport and an important naval base, having gained the name "Gateway of the Atlantic". Such important functions carry with them certain penalties, especially in wartime, when overcrowding stretches to the breaking-point the essential services in an endeavour to accommodate, as in the case of the last war, a 50 per cent increase in population. In times of peace, Halifax continues to be a crossroads for the sea as well as for the provincial population. These factors, of course, obtain in other cities, and no matter how much the problem is analyzed, tuberculosis remains a particular local problem with which to cope. Such factors, however, must be included in plans for control.

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Tables I and II provide a brief statistical analysis of tuberculosis mortality for Halifax City. The years referred to are census years with the exception of 1943, which is included because it is the last rate available. It will be seen that the population has increased between 1911 and 1943 from 46,619 to an estimated 81,556 and that the death rate from all forms of tuberculosis has decreased from 244.5 in 1911 to 94.4 in 1943. This rate is by place of

TABLE I  
DEATH RATES FROM TUBERCULOSIS (ALL FORMS),  
HALIFAX CITY  
CENSUS YEARS 1911-1914 inclusive AND 1943

| Year | Deaths from<br>Tuberculosis | Population | Rate per 100,000<br>(place of<br>occurrence) | Rate<br>(Residence) | Per cent Change,<br>Occurrence to<br>Residence |
|------|-----------------------------|------------|--|---------------------|--|
| 1911 | 114                         | 46,619     | 244.5  |                     |  |
| 1921 | 88                          | 58,372     | 150.8  | 157.6               | +4.5   |
| 1931 | 82                          | 59,275     | 138.3  | 107.9               | -21.9  |
| 1941 | 74                          | 70,488     | 105.0  |                     |  |
| 1943 | 77                          | 81,556     | 94.4   |                     |  |

occurrence and not corrected for residence. In a study covering the years 1922 to 1934 inclusive, it was ascertained that establishing death according to place of residence caused a reduction in the death rate ranging from 7.6 to 25.5 per cent. More recently, in the period from July 1, 1945, to March 31, 1946, deaths numbering 49 from all forms of tuberculosis occurred in the City of Halifax, of which 18 (36 per cent) had settlement or residence outside the city.

TABLE II  
TUBERCULOSIS (ALL FORMS)  
DEATH RATES PER 100,000 POPULATION  
HALIFAX CITY (BY PLACE OF OCCURRENCE) BY AGE GROUPS

|       | 1930-32 |                    | 1940-42 |                    | % Reduction<br>1930-32 to<br>1940-42 |
|-------|---------|--------------------|---------|--------------------|--------------------------------------|
|       | Deaths  | Rates<br>(Average) | Deaths  | Rates<br>(Average) |                                      |
| 0-4   | 32      | 189.0              | 18      | 103.8              | 45.1                                 |
| 5-9   | 12      | 67.7               | 5       | 28.9               | 57.3                                 |
| 10-14 | 10      | 58.4               | 6       | 35.8               | 38.7                                 |
| 15-19 | 33      | 194.3              | 16      | 83.7               | 56.9                                 |
| 20-24 | 39      | 218.3              | 23      | 95.0               | 56.5                                 |
| 25-34 | 57      | 198.1              | 60      | 148.3              | 25.1                                 |
| 35-44 | 35      | 145.4              | 25      | 88.6               | 39.1                                 |
| 45-54 | 27      | 152.2              | 25      | 112.0              | 26.4                                 |
| 55-64 | 17      | 152.1              | 19      | 138.3              | 9.1                                  |
| 65+   | 12      | 124.4              | 18      | 149.0              | +19.8                                |
| N.S.  | 1       |                    |         |                    |                                      |
|       | 275     | 154.6              | 215     | 101.7              | 34.2                                 |

Table II is a comparative study of deaths and death rates of two three-year periods, 1930-1932 and 1940-1942.

It will be noted that:

(1) In the ten-year period there was a reduction of 34.2 per cent in the death rate.

(2) The greatest single reduction has been in the 5-9 year age group, 57.3 per cent, closely followed by the age groups 15-19 and 20-24, with reductions of 56.9 and 56.5 per cent respectively.

(3) In the interval of ten years, there has been an increase of 19.8 per cent in the mortality of the group 65 years and over.

(4) The highest mortality in the three-year period 1940-42 was borne by the two age groups 25-34 and 65 plus.

It is now opportune to review some of the factors which have been operative in the field of tuberculosis in the past. Interest in the disease was manifest early. In 1908, the Halifax Anti-Tuberculosis League employed a nurse for the purpose of making home visits and generally assisting the tuberculous. This visiting nursing service was maintained until the duties were taken over by the Massachusetts Halifax Health Commission in 1919. In 1924, these duties were assumed by the Dalhousie Public Health Centre Nursing Staff. This service has continued up to the present time. In 1941, the nursing service of the City Department of Health was inaugurated and since then there has been an extension of the visiting nursing service for the tuberculosis field.

In 1914, the Anti-Tuberculosis League purchased a house to be used for a sanatorium and also was responsible for its maintenance. Between 1914 and 1921, three separate buildings in different locations were used for the treatment of the tuberculous. In 1921, the City of Halifax, assisted by the Anti-Tuberculosis League, erected the present hospital of 45 beds, the capacity of which was subsequently increased to 67. The city also took over the responsibility for hospitalization. The responsibility for the hospital lay with the Charities Committee of the City Council until 1935, when it was transferred to the charge of the Board of Health and later to the Committee on Health and Welfare, the Executive Officer of which is the Commissioner of Health. The Tuberculosis Hospital has had two part-time medical superintendents, the first from 1921 to 1941, when leave of absence was granted, and the second from 1941 to 1945, when a full-time medical superintendent was appointed. It is of interest to note that the hospital has been built and maintained entirely by the city and that no grant or subsidy has been received from the Government of Nova Scotia.

Finally, the efforts of the past would indeed be incomplete without mention of the Dalhousie Public Health Clinic. The building was erected by the Rockefeller Foundation and opened its doors in the service of preventive medicine in 1924. Not the least of these services have been the chest clinics. In 1925 the attendance at the chest clinics was 284, whereas in 1944 it was 2089. The cumulative attendance at chest clinics since 1925 has been 25,500. Their valuable contribution is recognized, and it is anticipated that the Health Clinic will continue as an important function in the program being projected. At present, all new cases of tuberculosis discovered in this clinic service are reported to the Tuberculosis Hospital. The field nursing service of the Health Clinic is confined to a limited number of families, and these families are utilized for teaching in connection with the medical school, the nursing schools and the school of social service. The principles underlying the nursing service are similar to those employed by the nursing staff of the City Department of Health.

The present phase of public health development in the City of Halifax had its origin with the appointment of a full-time health officer in August, 1941

In 1942, arrangements had been completed for the Rockefeller Foundation to make a survey and recommendations pertaining to public health development in the City of Halifax. The implementation of this program was started in 1943 and has been continuing since, although curtailed rather seriously by the difficulty of finding trained personnel.

With particular reference to tuberculosis, the plans included: (1) doubling the bed capacity of the present Tuberculosis Hospital, thus providing 135 beds for the treatment of the disease; (2) equipping the building for surgical treatment of tuberculosis; (3) installing in the hospital a modern X-ray equipment for mass radiography and detailed radiography, with particular reference to the chest; and (4) the appointment of a full-time medical superintendent.

The addition to the hospital will be completed shortly; exactly when it will be occupied cannot be stated because of manifest difficulties inherent in the times. The X-ray apparatus has arrived but is not yet installed. The appointment of a medical superintendent was effective July 1, 1945, purposely well in advance of the opening of the additional beds so that organization might be completed and plans drawn up for the control program. This implies what should be the key to a successful control program, for it means that the medical superintendent is also the director of tuberculosis control; that preventive work is interwoven with the clinical aspects; that with the centralization of all information pertaining to tuberculosis, it will be possible to project a common approach, a common understanding and a practical application of principles in prevention, treatment and control in the area under observation.

A most pressing immediate problem is to obtain an accurate picture of the morbidity from tuberculosis. To accomplish this, we are

- (1) Encouraging reporting of known cases of the disease, particularly by
  - (a) physicians;
  - (b) hospitals, especially radiologists;
  - (c) showing the various agencies that something will be done for tuberculosis if the cases are reported.
- (2) Incorporating existing clinic services and extending the principle within the Tuberculosis Hospital, i.e., to provide an out-patient section.
- (3) Initiating an active program for routine and repeated examination of known contacts.
- (4) Extending X-ray survey service to the apparently normal population.

These four points constitute a modern case-finding program, the basis of any plan for the reduction of tuberculosis mortality and morbidity.

To accelerate this part of the program, it was decided

- (1) To purchase a portable X-ray machine for use in the hospital until the modern and complete X-ray department is available.
- (2) To provide free X-ray service to all residents of the City of Halifax.
- (3) To provide clinical consultation service, either free or on the private basis according to the desire of the physician or the patient.

Furthermore, all physicians were circularized with a letter outlining the essential points and the program was presented to the Halifax Medical Society.



The Society endorsed it and unanimously passed a motion requesting private radiologists to report cases found by X-ray examination.

From the practical side, X-ray service is available daily and clinics are held once a week. Clinic service, therefore, is now available to the public four days weekly, three at the Public Dalhousie Health Clinic and one at the Tuberculosis Hospital. It should be pointed out that while the Dalhousie clinics include tuberculosis, they are primarily for any diseases of the chest, whereas the clinics at the Tuberculosis Hospital, while including diseases of the chest, are primarily for tuberculosis.

The principle of mass X-ray surveys has been started in a modest manner, being limited in scope by the 14x17 films and the portable machine. For purposes

TABLE III.  
RESULTS OF THE TUBERCULOSIS CASE-FINDING PROGRAM HALIFAX CITY  
July 1, 1945, to March 31, 1946

| Service                                       | Number first attendance | X-Ray or Fluors. | Active Tb. |     | Inactive Tb. |      | Prim. Tb. (calc. excl.) |      | Suspect Tb. |     |
|---|-------------------------|------------------|------------|-----|--------------|------|-------------------------|------|-------------|-----|
|   |                         |                  | No.        | %   | No.          | %    | No.                     | %    | No.         | %   |
| 1. Tuberculosis Hospital. . . . .             | 424                     | 424              | 42         | 9.9 | 67           | 15.8 | 7                       | 1.6  | 14          | 3.3 |
| 2. Dalhousie Public Health Clinic. . .        | 253                     | 253              | 8          | 3.2 | 9            | 3.6  | 9                       | 3.6  | 4           | 1.6 |
| 3. Referred by Physician. . . . .             | 77                      | 77               | 3          | 3.9 | 1            | 1.3  | 1                       | 1.3  | 0           | ..  |
| 4. X-Ray Survey—Contacts. . . . .             | 365                     | 361              | 6          | 1.7 | 6            | 1.7  | 6                       | 1.7  | 4           | 1.1 |
| 5. X-Ray Survey—Apparently Normal Population. | 1,123                   | 707              | 6          | 0.8 | 13           | 1.8  | 1                       | 0.14 | 3           | 0.4 |
|   | 2,242                   | 1,822 (81%)      | 65         | 2.9 | 96           | 4.7  | 24                      | 1.0  | 25          | 1.1 |

210 cases or 9 per cent of those examined require further observation.

of economy and conservation and to make the most effective approach to case-finding with present facilities, patch tuberculin tests have been employed as a primary filter among contacts and in the apparently normal population. With sufficient numbers tuberculin-tested in such a manner, we will have tuberculin levels for various age groups which will provide an interesting comparison in years to come. When the photoroentgenoscope becomes available, the tuberculin test will not be used as widely, the groups going directly to X-ray.

Tables III and IV give the overall results of the various services offered in the tuberculosis case-finding program. While the dates given are July 1, 1945, to March 31, 1946, it is to be noted that the portable X-ray has only been employed in the Tuberculosis Hospital since October 1, 1945, and that up to the present 2,300 films have been taken on this machine.

The system employed following discovery of a new case is as follows:

(1) If a patient has been referred for consultation, a report of the findings and recommendations is sent to the family physician.

(2) If the patient has been referred for X-ray only and is found to have tuberculosis, the family physician is telephoned immediately and this conversation is followed by a detailed written report. Otherwise, a routine report is forwarded.

(3) If the X-ray is the result of a survey, either of contacts or of the apparently normal population, the patient is requested to report for what we have termed "clinical appraisal" including sputum examinations, at which time his condition is discussed and the report is sent subsequently to his family physician and the patient asked to report to him.

In all instances, a carbon copy of the report is sent through the supervisor of the public health nursing service to the district nurse (there are 13 nursing

TABLE IV  
TUBERCULOSIS CASE-FINDING PROGRAM  
HALIFAX CITY

Diagnosis established July 1, 1945, to March 31, 1946, on active cases of tuberculosis of re-infection type

| Service   | Minimal |         | Moderately Advanced |         | Far Advanced |         | Total | Percent of Active Cases |
|---|---------|---------|---------------------|---------|--------------|---------|-------|-------------------------|
|   | No.     | Percent | No.                 | Percent | No.          | Percent |       |                         |
| 1. Halifax Tuberculosis Hospital..                    | 12      | 28.5    | 25                  | 59.5    | 5            | 11.9    | 42    | 64.6                    |
| 2. Dalhousie Public Health Clinic.                    | 2       | 25.0    | 4                   | 50.0    | 2            | 25.0    | 8     | 12.3                    |
| 3. Referred by Physicians.....                        | 1       | 33.3    | 0                   | —       | 2            | 66.6    | 3     | 4.6                     |
| 4. X-Ray Survey of Contacts.....                      | 4       | 66.6    | 2                   | 33.3    | 0            | —       | 6     | 9.2                     |
| 5. X-Ray Survey of Apparently Normal Population ..... | 4       | 66.6    | 2                   | 33.3    | 0            | —       | 6     | 9.2                     |
|   | 23      | 35.4    | 33                  | 50.7    | 9            | 13.8    | 65    | 100                     |

districts in the city). The district nurse in turn contacts the family physician to discuss the patient's condition together with the tuberculin testing and X-raying of known contacts. She then goes to the home to ascertain if instructions are carried out, to see that contacts are examined, and to be of assistance in the many problems arising from the situation.

A "census card" is made out for all positive or suspect cases. This is a form from the Provincial Department of Health and when completed, the information is transferred to a visible filing system in the Tuberculosis Hospital; i.e. the Tuberculosis Register, which has a file for each nursing district and is kept "living" by employing flags to indicate the condition of the patient as of the last examination. The census card will then be forwarded to the Provincial Department of Health for the morbidity file.

A completed diagnosis consists of:

- (a) Disease established as pulmonary tuberculosis, primary or of the re-infection type,
- (b) The anatomical extent, i.e., minimal, moderately advanced or far advanced,
- (c) The clinical status, whether active or inactive,
- (d) The infectivity, i.e., whether open or closed.

Other immediate diagnoses might be "suspect", "diagnosis delayed" or "not diagnosed".

Disposal of each case is attempted under one of the following headings:

- (a) Sanatorium treatment.
- (b) Home treatment with frequent re-examination.
- (c) Observation only.

(d) Routine check-ups at stated intervals, the latter applying particularly to patients recovered from tuberculosis and to contacts.

One of the best guides to an effective tuberculosis control program is the morbidity-mortality ratio. A starting point had to be made from which morbidity statistics were to be collected. This date was taken as July 1, 1945. All patients on whom a diagnosis was established before that date are termed "old" cases of tuberculosis and those diagnosed since that date are termed "new". A total of 396 cases of tuberculosis have been entered on the Tuberculosis Register. Of these, 210 have been classified as old cases and 186 as new. Of the 396, 128 have been classified as open and 252 as closed. These figures cannot be accepted as final but they do give an indication of what is being done.

Case-finding is of little value unless facilities for adequate treatment are available. As previously mentioned, the capacity of the Halifax Tuberculosis Hospital is about to be doubled, providing 135 beds. The following necessary collateral services have been provided:

(1) Free pneumothorax refills, including fluoroscopic examinations for residents of the city.

(2) A consulting staff for the hospital consisting of a senior surgeon, a junior surgeon, an internist, a radiologist, an anaesthetist and a specialist for eye, ear, nose and throat.

(3) Facilities for modern surgical treatment of tuberculosis.

In the treatment of the clinical disease, it is intended to keep before us the prime purpose of sanatorium beds, i.e. control of the disease tuberculosis. It is anticipated that with an aggressive case-finding program providing earlier diagnosis, followed by early admission to hospital and application of collapse therapy, the shorter period of hospital treatment required will provide an adequate number of beds to care for the situation.

The importance of education has not been overlooked. An endeavour is made at the beginning to make the patient appreciate the fact that his recovery is dependent on his own attitude and his own co-operation; and the principles of control measures, including X-ray examination of all contacts, are brought early to his attention. He is carefully instructed in what to do on his return home and the importance of routine check-ups at stated intervals is impressed on him. This, together with a co-operative and active field nursing service, should reduce breakdowns to a minimum. It is also expected that there will be some development along the lines of vocational training as well as some attempt at rehabilitation.

In the field of education, it is to be noted that this hospital is one of the teaching hospitals for the Dalhousie Medical School, and that there are in the City of Halifax four hospitals with training schools for nurses. It is anticipated that some arrangements will be made to provide these nursing schools with specific information for teaching in the field of tuberculosis. Finally, as soon as may be practicable, it is planned to use BCG vaccine as a preventive in selected groups.

## THE REAL HOUSING PROBLEM

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THE remarks I shall make are the result of observations in my own experience in my own city, and the recommendations are also my own, although I have noted that some politicians are discussing the subject matter elsewhere along parallel lines. However, this paper has and must be construed as having no politics whatsoever, as public officials have, or should show, no public preference for one brand of politics over another. Our duty is to the general public, and we must hew to that line and let the chips fall where they will.

I would like, first, to quote some extracts from Pamphlet No. 21 issued in 1938 by the Department of Pensions and National Health at Ottawa. The provision of proper homes for all classes has three aspects, one of which is stated as follows:

"Dwellings for the lowest income groups who have not, and may never have the ability or opportunity to earn sufficient to pay a self-supporting rent for the size of dwelling required to house their families under minimum permissible conditions of sanitation and decency. The construction of such dwelling accommodation obviously will never be undertaken as a commercial venture by private initiative. These people need to be assisted by the community, and the manner of this assistance is the housing problem in its thorniest aspect. Almost altogether this group is a class of renters, both due to limited finances, and to their necessity to be free to move in accordance with the location of their employment."

Further on in the same pamphlet, following a discussion of costs of construction for a minimum standard of sanitation, this statement occurs:

"It is quite obvious that both our so-called minimum standards must be scaled down and our cost of building reduced to the limit." I do not agree that sanitary standards should be scaled down. They should rise if anything.

And later it says:

"Today housing is more than merely providing shelter for human beings; it means airy, sunshiny rooms where children may play in safety; it means facilities for sleeping out-of-doors and a cheerful wholesome environment for the entire family.

"Environment, especially during childhood and growth, modifies many inborn tendencies. Dark, gloomy, insanitary hovels, which submerge the thoughts of their inmates to the level of the beast, are not conducive to health or later to good citizenship; moreover, under such conditions sickness and poverty occupy so much energy and thought as to preclude much effort for better things.

"The development of good citizens in a country like Canada is of the greatest importance, since the future of the nation depends on the physical, mental and moral health of the young people. Good housing therefore becomes an important means towards that end.

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*Presented at the annual conference of the Canadian Institute of Sanitary Inspectors (Ontario Branch), held in the Royal York Hotel, Toronto, May 6-8, 1946, in conjunction with the annual meetings of the Canadian Public Health Association and the Ontario Health Officers Association.*

"If the families whose incomes are far below the standards are to be housed as human beings should be, then some method will need to be developed so that homes that allow for sunshine, fresh air, and play space for the children will be available."

I think there will be general agreement with that statement.

And again I quote:

"It is unnecessary to stress the intimate relation which exists between efficient production and the condition of life to which a man or woman returns at the close of the day's work. When the employees of industry and commerce return to families who are housed in dwellings that are crowded, insanitary, inconvenient and unlovely, these men and women suffer in health and well-being, and consequently are unable to render that effective productive effort which the nation needs. Bad housing creates a distinct restlessness that swells the volume of industrial discontent."

There are "blighted areas" or slums in practically every large town or city but only half-hearted efforts, or none, have been made to deal with the situation. In this connection, here is another quotation:

"Slum clearance is the final step in the housing problem and is the use of the sovereign power of the community to stamp out something antagonistic to its well-being, even as it would use same to quench a fire, control an epidemic, or disperse a riot. The condemnatory power is required because there is no possibility of profits to urge the initiation of same as a commercial venture. The profit-making urge, on the other hand, tends to make the work of the community expensive or impossible."

We—that is, you and I—through our respective governing bodies, charitable organizations, and housing enquiry committees, have done and are doing a lot of talking and writing about the Housing Situation, and are talking and writing in capitals, but I suggest to you that so far no very great or even very significant concrete improvement except along certain restricted lines has been the result of all this.

The Government as at present constituted has to move through red-tape labyrinths and mazes to activate as best it may the committees designed to co-relate the activities of the various trades concerned with house-building, the real-estate owners and operators, plus the special pleas and demands of local interests and politics, to say nothing at all of the biggest mountain these committees are supposed to move, the financial interests. Properly speaking, the latter is the most important of the mountain range and unless an accretion to its size and importance is practically assured, no amount of faith can move it out of its accustomed orderly and pedantic grooves. It has to have its "quantum sufficit"—its profits, or there is nothing doing.

All house building hitherto and at present has the profit motive as its inception and its impetus, and in times of ordinary prosperity this is a reasonable state of affairs for those who can afford to pay for a house out of their earnings. It makes a good living for the builder, and a living, according to his ability and skill, for the man who does the actual work. Such houses, however, are not built for renting. They are for sale, or are built for an owner-occupier. Today, even this class of occupant finds a scarcity of housing in existence. They have the price, but the materials are not available. There are large numbers of those who cannot afford to buy or build a new house, who have to content themselves with houses discarded by more fortunate people who have gone into new

houses. The gradation of this section of the people ranges from the comfortably placed to the miserable, the former being usually in a position to afford decent accommodation, and the latter, those whose misfortune or mismanagement has introduced and accustomed them to a degree of housing that is a blot on the community in which it exists. A belief exists amongst some persons that the construction of new houses of the better, more luxurious type would leave old houses for the use of the poorer classes. This is not sound thinking, as it is based on the assumption that the rents would be adjusted so as to allow occupancy of people in a lower-income bracket, at a lower rental. But, inevitably, the former rents have been capitalized into ground values, and the owner's investment is such that high rents are necessary to produce a satisfactory return.

In between the classes I have called "comfortable" and "miserable" there is a very wide range, and it comprises probably 75 per cent of the population. Some of these in-betweens are quite satisfied to be able to take over somebody else's old house, and by dint of ingenuity, economy and thrifty habits, get along fairly well, by taking in extra families or lodgers, to the extent that many of them, after a long period of subservience to a mortgage company, own the property. Many of the purchasers, or lessees of old houses, provide accommodation of a sort, for certain sections of the community, such as families doing light housekeeping, boarders and roomers. This accommodation, as often as not, is produced by the installation of gas stoves or ranges, and by the dividing and sub-dividing of large rooms into smaller ones, sometimes without regard to dimensions or windows. The guiding principle throughout is, of course, profits, rather than service and comfort to the occupants. In many instances we find that an individual has a number of such old houses, filled with light-housekeeping families and roomers, having only the original plumbing fixtures installed. In this respect, however, it is not unusual to run across sinks and wash basins installed here and there without regard to proper connections to the plumbing system. However, such gentry, whom I define as House Farmers, in spite of their predilections for profits, do offer accommodation, and a service to the community in that they offer a shelter to thousands of persons who are somewhat callously lumped under the heading of the low-income group, by some of those in authority, and in better circumstances. I am not greatly concerned with those who can afford to buy a house for themselves, even a second-hand one, nor with those who could do so, but prefer to buy a car, or indulge in some other form of uneconomic spending. My concern is with those whose income denies them any prospect of living under decent sanitary conditions, and their numbers are larger than many suppose. I submit that this is something about which we, as health officials, should do something. I suggest that we should agitate for, and promote, housing reform at every opportunity, and din the ears of authority with its urgent needs. Wholesome environment, decent housing and living accommodation for the low-paid worker should be held a prime duty of government. It should not be left to the thrifty notions and tender mercies of the House Farmer, as just what such mercies are, men in our profession know only too well. Miserable rooms with stained and dirty and broken



walls; ill-fitting windows, that keep out neither rain, dust, nor cold; insufficient heat that has to be augmented by the burning of gas ranges in the room; defective heating equipment permitting coal gas to escape into the house, to threaten with asphyxiation the unfortunate occupants; insufficient lavatory accommodation, often only one water closet for several families; and no sinks; vermin infestation from lice, bedbugs and rats; as much privacy in their ordinary lives as so many goldfish—all these and others that could be named, are the common lot of those of whom I speak and can be found in almost any of the roosts that fatten the earnings of the House Farmer.

It sometimes happens that low-wage individuals may be able to get possession of an old dilapidated cottage at a rental that he can afford, but which does not provide the owner with sufficient revenue to take care of taxes, plus repairs; in this case, taxes are usually paid in order to save the investment, at the expense of necessary repairs and renovations. The result is a progressively rapid deterioration of the house, to a point where it is no longer capable of sustaining renovation, either physically or economically. But, so long as it stands, in these our times, it remains occupied, usually by the lowest grade of the submerged tenth. Finally, the owner may cease to pay the taxes and abandon the property to the City. When the latter acquires title, a process which takes several years, the place is either wrecked or patched up sufficiently to permit its continued existence as a shelter, and the City sells it as often as not, to the first comer, in order to get it off their hands.

The providing of proper housing for certain classes of its people is, I submit, the duty and the responsibility of the senior governing authority, in our case the Federal Government. It alone has an over-riding authority in cases of national emergency, and if the present housing shortage does not constitute a national emergency, then I don't know what does. The late war was an emergency, and measures on a national scale were necessary to cope with it. Preceding it, during its duration, and since its ending, there was and remains a national housing scarcity, due to the economics of the situation, the neglect to build houses during the last fifteen years and, furthermore, as is suspected by some, to the present deliberate withholding from the domestic markets of materials required in house construction. Whether or not the latter suspicion is well founded, I have no definite information other than newspaper columns, but in our city at least, the housing situation is desperate, and materials are almost as scarce as hen's teeth. If it is conceded that there is a national emergency in regard to housing—and no person in our profession could, in my opinion, conceivably hold a contrary opinion—the situation can be met and adequately dealt with only by the Federal Government, acting under special powers it possesses to govern and direct the affairs of the nation in a time of emergency. If this could be done during the war, when everything was subservient to national existence, surely effective housing measures could be devised now to care for the health and welfare of the nation.

It is axiomatic that all law-enforcement bodies, including those concerned with health and morals (not to say morale) and education, are aware that the

occupants of congested, low-class housing areas provide them with their biggest headaches. Infectious diseases spread rapidly in such areas. Offenders against the criminal code have their haunts in such areas. Juvenile delinquency rears its ugly head in such surroundings and sexual promiscuity is more or less commonplace, primarily due to the lack of privacy. Common use of inadequate plumbing fixtures is also a factor here. These all have their perpetuation, if not their origin, in the decline in the will, or wish, or ability on the part of the submerged, to overcome the handicaps of inferior accommodation, congestion of population, vermin infestation, dirty rooms and habits, general slovenliness, and the acceptance of debilitated living standards, due to a decisive breakdown in their morale. The latter is a concomitant of a debased standard of living, and to expect these people to get out of their ruts of their own accord or effort, is to expect them to raise themselves by their boot straps.

How then do these people come into this category of the population? Almost invariably because they haven't the wherewithal to do better for themselves. They have to accept, if not be thankful for, low-class shelter, because their means will not allow anything better. In the course of time, they become hardened to their condition, and cease to struggle against it. Children brought up in such circumstances accept these conditions as normal, and while no doubt many do escape, later on, into better surroundings, many do not, preferring to keep to an environment that they know. It is not an economic situation that flatters our modern civilization, but it has a definite influence on municipal and other economics, for the reasons given above. I suggest to you that it would be much cheaper in the long run to house these people in publicly owned shelter, for which they would pay rent in proportion to their earnings and be encouraged by precept and friendly supervision to become clean and healthy members of society. This would undoubtedly mean the building of satisfactory dwellings, possibly in multiple form, at a financial loss, with the municipality as landlord, but there is no way in which we can overcome slum conditions except by financial loss. One alternative, to pay them higher wages, while on the one hand it probably would antagonize those who employ them, on the other hand might not meet with the desired success. Most know the tale of the beggar-on-horseback, and it could be that these people, not having the education, desire, or knowledge of better things, would simply squander on their wants (not their needs) any increase in wages designed for better housing facilities. In any case, the old houses would remain, unless they were demolished; and without education to the contrary, the former occupants would go back to their old surroundings, perhaps with a feeling of relief, rather than try to change their ways.

In my opinion, the situation in respect to the housing of the low-income group can be dealt with only by the erection of suitable dwelling units without regard to tangible profits. The profits would, I submit, show in the long run in reduced expenses of the health, fire and police departments, and in the improved general health of the community. It would be necessary to ensure that unscrupulous persons, who could afford to pay for housing at market prices, did not usurp the shelter so provided. It is highly probable that many would try to do

so. A standard of income would have to be set, above which level persons would have to provide their own shelter. Occupants of rented shelter, built under the auspices of the Government, would have to be kept under educational supervision for some time, in order to see that the accommodation was not abused or misused. Probably the best sort of person for such a job would be the trained sanitary inspector.

In Great Britain, according to news reports, the Federal authority is tackling the housing problem realistically, by subsidising house building for the low-income group, and outlawing luxury building. The British Government is building, and will continue to build, houses of the three-bedroom type to rent for about \$4.00 per week. There will be no time, labor or building material for luxury building. Here in Canada the authorities seem unable to envisage anything but a detached house on a lot, to be built at a profit by private contractors who will sell to anybody who has the money to pay for it. They don't appear to have any cognizance of the needs of the low-income group, who haven't the money for such building. Wartime housing is apparently for a category of persons above the low-income group and eventually may put the municipality into the landlord class. What funds or access thereto has an individual whose earnings in a year would hardly equal the down-payment required on a house built by a private contractor, in the customary financial manner? Would any builder accept him as a sound risk for future payments, even if he could meet the down payment? Would any of the mortgage companies or the other financial institutions give him a loan? They might if the individual was a returned soldier with a fat gratuity as a result of his years of service, but not otherwise. The timidity of capital is notorious and it parts with its substance with the willingness of a man to part with his right eye. That is why I submit that the Dominion Government, for the benefit of the nation as a whole, must step deeper than it has done so far into the house-building picture as a measure of national health and welfare. This is not only my own opinion. Writers of almost all shades of political opinion have stressed from time to time the paucity of visible results from the labors of the various committees set up by government to bring about improvements in the general housing picture in this country. One Winnipeg newspaper on the 20th of February last made sardonic reference to the small mouse that was the sole output of the whole chain of mountains laboring at the task of getting houses built. Everybody seems to admit that the situation is desperate, but nobody in authority appears to be able or willing to try to overcome its inertia.

I suggest that legislation should be enacted that would give the local authority power and funds to acquire land, where it hasn't it at present, on which to build houses, in multiple form, for the accommodation of the less fortunate of the people. It would put the local authority into the landlord class, and would no doubt be bitterly opposed by the realtors, house farmers, and some councilmen. If, however, the British authorities have the courage and the concept of public duty, to devise and carry out a non-profit housing program for its low-paid workers, surely the Canadian authorities could do as much for our population in this respect. The British have to import most, if not all, of their

material too, while ours can be produced here largely, on our own ground. Private enterprise is unwilling and unable to carry out such schemes, unless some profit can be made in the transaction. Only the over-riding authority can do so, and until it does, the slums and all the sordid, unwholesome and degrading concomitants of such debased housing conditions will remain a festering sore on the body politic and a breeding-ground of discontent, crime, and disease; an unending problem to all law-enforcement officers.

I would like to urge you all to do your utmost to bring an end to such an unsavoury condition in our country. At the moment, our sanitary inspectors cannot enforce many of the provisions of the Public Health Act and the municipal health by-laws in respect to housing and kindred matters, because such enforcement at the present time would be considered detrimental to the unfortunate occupants of low-class shelter, who would be involved. Suppose—although there is no need for supposition in the face of the present realities—there *are* families living in overcrowded tenements and houses, under conditions that are well-nigh intolerable from the point of view of health officials. Any action by the sanitary inspector to enforce the law would be regarded by these unfortunates simply as persecution, and higher authority, upon appeal, might intervene to mitigate the application of the law; in fact, has done so often enough to indicate a line of policy, to prevent the operation of the law which would otherwise cause additional hardship and misery. The laws and regulations concerning health matters are designed to improve unhealthful conditions already in existence, and to prevent their creation. I suggest to you that, in so far as it lies in your power you insist on compliance with such regulations, at least until higher authority intervenes. But, once a line of policy is laid down, however roughly and incomplete as to detail, the inspector has to weigh the pros and cons of the situation from his own, and from a humanitarian point of view, and consider whether or not it would be better for the occupants of over-crowded or insanitary premises to be proceeded against, or whether they should be left alone. In my own experience, apart from the usual multiple occupation of single-family houses, there are a number of families living now in stores, sheds, cellars, tents, garages, and unfinished houses and trailers, and I have simply had to ignore the results of our inspections, and just keep a record of such places. Of course, they will all be checked over in milder weather, and where possible the situation will be corrected, but I am not very hopeful of any marked improvement being possible for a long time to come. No doubt you in your own spheres are confronted with similar conditions, as I imagine it is an almost universal condition in our towns and cities.

I suggest that if dwelling units in whatever form (but to my mind in multiple form for economy's sake) were erected and made available to the low-income group, there would be a retreat from the presently overcrowded old houses, leaving them available for proper conversion to duplexes or small apartment houses, thus bringing about a considerable improvement in the general housing picture. Terraces of dwellings of single-unit or duplex-unit form, with four and not more than six units to a row, are a practicable proposition, and can be built

at considerably less cost than the same number of units could be produced if built singly on a separate lot. A central hot-water heating unit would also prove more economical than a number of separate installations. I do not share with some the apprehension that the construction of terrace dwelling units and apartment blocks in certain selected areas would result in undue concentration of population, to the detriment of the community as a whole. Some concentration would be inevitable, but would it be any worse than that which exists to-day in some communities? I think it would result in a reduction in the over-all crowding of any given area. Certainly there should result a very great over-all improvement in other ways. Each family would have their own units of plumbing, a reasonable amount of space, and would have a private life of their own that is not possible to many in the low-income group at present. A resulting rise in morale seems to me to be inevitable when housing conditions become improved, and an improvement in morale is a sure forerunner of improvements in health.

Should the low-paid worker be relieved of a portion of his present costs for shelter, it might be expected that large numbers of this group would be able to spend more on food and clothing. The effects of low standards of living, which include clothing, housing and food, as well as habits, were reflected in the large percentage of men rejected for military service during the late war. Many men were put on their feet physically and their morale improved as a result of good food, and reasonably decent housing facilities, after enlistment. Is it unreasonable to require that provision of housing and access to food supplies for the low-paid group should be at least as good as that provided for the Armed Forces? I contend there should be a new view of the housing picture taken by those in authority, and action taken to ensure that this group have at least the opportunity of living conditions equal to those obtained in the services. After all, it is only a measure of commonsense to keep the civilians in such trim as would render them fit for military service, should the need arise. These hewers of our wood and drawers of our water are the work-horses of the community. How can we expect satisfactory, efficient and contented service from them, when their homes and standard of living are of a low order? The owner of work-horses, if he is to reap any benefit by possessing them, must adequately feed them, and house them in reasonably comfortable barns, otherwise their efficiency is impaired. Isn't it plain commonsense that our own human work-horses should be housed in conformity with decent standards of living? This is, of course, purely selfish from a national viewpoint, but it is one that might suggest itself to interested parties. For my part, I consider it a national obligation from a moral as well as an economical point of view that the nation as a whole, as well as the more or less affluent minority, should have the best housing possible, consistent with true economy; and the latter implies a healthy, happy community. With the perpetuation of the present conditions, there can be no general improvement, and as a chain is as strong as its weakest link, so must the unsatisfactory housing of a considerable portion of the population be considered a weak link in the nation's life.



## PROFESSIONAL GROWTH IN PUBLIC HEALTH NURSING SERVICE

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**B**RITISH COLUMBIA is a province of varied industries built upon its major resources, lumbering, fishing and mining. It covers an area of 360,000 square miles and is essentially a mountainous country made up of a series of parallel mountain ranges with long, narrow, fertile valleys lying between. The population of just under one million is almost evenly divided between the two major cities, Vancouver and Victoria, and the small cities, rural communities and isolated areas spread through the valleys.

Public health nursing service is brought to the people through the medium of three main organizations: the Victorian Order of Nurses, the Metropolitan Health Service of Greater Vancouver, and the Provincial Department of Health and Welfare. This paper is being presented from the viewpoint of the Provincial Department of Health.

Since 1917, when the first health unit was established and when school nurses were giving service in a few scattered districts, there has been an ever-increasing demand for more health units and generalized public health nursing services. It has been possible to meet the change through education of the public to the need for a broader program and through the understanding and development of a larger qualified public health staff. Gradually there have evolved through experience and opportunity, three methods for the continued professional growth of the individual on the job—orientation, experience, and direct education projects.

1. *Orientation*—the familiarizing of the philosophy and the policies of the organization and their practical application in the local district.

To the registered nurse who has been working in a hospital under close supervision this presents a difficulty. A longer period of time is necessarily spent by the registered nurse than by the public health nurse in bridging the gap. Even so, her services are of necessity limited and, therefore, only a few registered nurses are employed and these are placed in carefully chosen areas on a temporary basis. The experience provides an insight into public health, thus increasing or dispelling the desire to invest in the courses necessary to become a qualified public health nurse. Our findings have shown that the nurse who knows the practical application of public health principles makes a better student for public health work at a university.

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The recent graduate in public health nursing looks forward to the time when she can attach herself to an organization, learn in detail its operation, and use the tools it provides. Manuals are provided for records, for instructions of divisional policies (as Tuberculosis, Venereal Disease) and information governing prenatal, infant, preschool, school, and adult services, sanitation program, communicable-disease work, etc. The person offering guidance to the new appointee during orientation is usually a public health nurse who through her experience knows both the routine and the community. Consultant nursing service is available as far as possible to each new appointee about the time she arrives in her district. The consultants are experienced public health nurses who have had post-graduate study on a Master's level. Special services include guidance from the epidemiology workers from the Division of Venereal Disease Control who familiarize the public health nurse with the specialized program. In health units, the director, sanitarian, and statistical clerk explain various phases of their work. The emphasis is placed on the dovetailing of the individual's work into the whole program. Periods of observation with other public health personnel are planned before the public health nurse assumes the responsibility of handling a district.

Even the experienced public health nurse in transferring from one district to another is given, as far as possible, a period of time with the previously employed public health nurse.

There is no fixed time for the orientation period, as it is governed entirely by the circumstances in the district and the length of time the senior public health nurse, supervisor or consultant can be available. The personal factor does control the amount of concentrated help that is given in the time at the new public health nurse's disposal.

2. *Experience*—a growth period obtained only on the job, to provide better local community service. Should not the public health nurse's various positions in the field be guided by her ability, desires, and personal circumstances? It is important that in increased responsibilities be a gradual process, assumed as the public health nurse moves from one position to another. The recent graduate in her first public health position may have to meet and adapt herself to a new environment, as well as to a new type of work. She is placed in a health unit area when possible, or in a district served by more than one public health nurse. The gradual absorption of the agencies' policies and the assuming of new duties leads to satisfying accomplishment. Meeting the everyday problems in public health stimulates the new worker. As the public health nurse learns to cope with the everyday problems, she is stimulated to seek experience with more difficult problems.

To assist the nurse to maintain an "alive" interest, she is given the opportunity of a transfer to a different type of district where she may have more responsibility. It is our policy to offer inducements to public health nurses to transfer every two, three or four years.

The average public health nurse of two to four years' experience is also ready to accept responsibility in the guidance of other public health nurses and

students. She may become a senior over public health nurses in the generalized field. A further phase in the growth experience of the worker develops as a result of planning and executing a student program. Her background has usually been sufficient to prepare her to organize public health nursing in a new district; she shows initiative in the guidance of others—student nurses in training, registered nurses, public health nursing students and recent public health nursing graduates. She is a person who shows ability and foresight in developing and guiding a community public health service.

Positions are available in the venereal-disease control program and child-guidance clinics which provide scope for a broader background of knowledge and application of the principles to the field. The experience covers a period of one to three years, after which time the public health nurse returns to the generalized field where she can bring back to the community a richer program.

Public health nursing supervisors in health units, supervisors of a group of nurses, supervisors of the Division of Venereal Disease Control, of the Division of Tuberculosis Control, are chosen from the group who have served in the generalized field in two or more districts. Following a period of special training, the supervisor is no longer just supervisor-material but assumes the position of supervisor with knowledge through additional education.

In the positions of staff public health nurse, senior public health nurse, and supervisor, qualifications of a certificate course or degree course are equally acceptable. However, as only degree students have the basic qualifications for consultant or director, consideration is made in placing them in centres to gain experience in a unit and in an organization within a comparatively short space of time. After they have demonstrated potentialities of a consultant, they obtain their Master's degree in public health, returning to their consultant position.

3. *Direct education projects to promote improved local services are many and varied*: bulletins, news letters, pamphlets, library service, study groups, institutes and staff meetings.

The Health Bulletin is a compilation of the vital statistics for the current month with narrative interpretations stressing trends and health implications. Articles each month present in a popular style one phase of the work in its broader aspects. They may deal with birth rates, infant deaths, accidents. For instance, last month the article on arthritis presented the wide-spread incidence and known methods of prevention, treatment, available facilities, and the challenge still before us in meeting the problem.

The news letter, *Public Health News and Views*, is also a monthly publication. Unlike the Bulletin it has a restricted distribution, i.e. for technical employees of the Provincial Department of Health and representatives of other public health organizations. Policies, special studies, group activities, book and article reviews, new pamphlets and personnel items are circulated through this publication. It forms a medium of exchange of ideas from central office to the field and thus results in free expression of ideas and modifications of programs.

Pamphlets are continually being brought to our attention. All new pamphlets are appraised in the office before being distributed to the field. Now

that we have a public health educator on our staff, we are gradually compiling our own pamphlets. *Understanding the Normal Child* and *Feeding the Normal Child* are examples of successful material written by one of our health unit staffs to meet local situations and present in a brief way the authentic material in child care that is published in books and journals.

Library services, although always available, have been improved and give stimulation to everyone of us. Enquiries for books, films and material on specific subjects have increased markedly in the past few years, indicating growth in the field staff.

Staff meetings in the health units and larger public health nursing centres continue to be a regular medium for exchanging information. Minutes are kept and any resulting discussion which might assist other workers in the province is forwarded to the central office for consideration and action.

Public health nursing study groups have proved to be one of the most democratic of educational methods. Study groups are made up of the public health nurses in each geographical area of the province. Many of the nurses voluntarily travel 100 to 200 miles to join their fellow members in discussion of local and provincial public health policies.

In these sessions the public health nurses interchange ideas and discuss articles which they have found interesting. They also work on such practical projects as constructing form letters, and simplification of record systems. As a group they discuss how they may best use the equipment and material provided. As a group also they will often discuss more frankly their opinion on suggestions sent out from the central office.

The Institute is the largest joint effort of the central office staff and the field staff to keep abreast with developments in the many branches of public health. Complete field staff, health unit directors, public health nurses, sanitarians, statistical clerks, representatives of other public health organizations in the province and central office personnel meet for a four-day concentrated study period. Speakers from allied fields are invited to present descriptions of their work and phases of it which will lead to a better understanding and closer co-operation.

Examples of the educational methods could be cited indefinitely, but the specific one presented will give you an idea of the system we have adopted.

Public health service is becoming more and more recognized as an essential community service; public health administration is becoming more concrete; public health methods are constantly changing. Each of us is being challenged by changes. Co-operation and education of field staff and central office staff is one way of keeping abreast of new developments. In British Columbia our services cover a wide-spread area, and the isolation of workers presents many difficulties. In spite of this, we are developing a continuous program of interchange of ideas and material, but we cannot stop here. Are there not further possibilities for interchange of ideas which could be facilitated by Dominion-wide representation to bring better public health service to the people of Canada?

## QUATERNARY AMMONIUM COMPOUNDS AS PRESERVATIVES FOR MILK

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THERE is at present considerable interest in the use of quaternary ammonium compounds as sanitizing agents in the dairy industry and related fields. One of the advantages claimed for these products is that their sensitivity to organic matter is much less than is that of the hypochlorites commonly used. This may suggest to unscrupulous persons the possibility of employing these products as preservatives in milk.

### METHODS

To determine how effective these compounds might be, tests were conducted in which four representative products were compared against formaldehyde, which is recognized as a very effective preservative. As in previous studies on the possible preservative effect of chlorine compounds (2), the "critical concentration", i.e., that concentration of product which, when added to fresh raw milk and held at 60°F. (15.6°C.) for 18 hours, could barely be detected by taste, was determined\* to be as follows:

| <i>Product</i> | <i>Parts per million, active ingredient</i> |
|----------------|---|
| Emulsept       | 560   |
| Roccal         | 150   |
| Hyamine 1622   | 100   |
| R-2-L          | 70  |
| Formaldehyde   | 25  |

To determine the preservative effect of these critical concentrations, a quart bottle of fresh, high-grade raw milk was obtained for each run. For the first run, the contents of the quart bottle were mixed by repeated inversion. In subsequent runs, the contents were mixed by pouring back and forth from one quart bottle to another. In each run the first 100 ml. was taken as Control No. 1. Further 100-ml. portions were then added to sterile stoppered 200-ml. Erlenmeyer flasks containing the required amount of each product, and a final 100-ml. portion was taken as Control No. 2. The standard plate count (1) of the original sample was determined at this time, then all flasks were held at 60°F. (15.6°C.). After 18 hours, each sample was plated, while tubes

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for the methylene blue (3) and resazurin reduction (4) tests were set up and incubated at 37°C. Tubes were observed at 30-minute intervals and, after inspection, inverted to minimize the "creaming error" (3, 5, 6). Inversion was discontinued as soon as methylene blue tubes showed the first sign of decolorization, and with resazurin as they approached the pink stage.

### RESULTS AND DISCUSSION

The results obtained by the plate count method are summarized in Table I. To facilitate comparisons, the counts for the two control samples in each run have been averaged and given a value of 100, and the counts for the other products then expressed as a percentage of the control count. An average value for all 5 runs has also been calculated for each product, and this value also expressed as a percentage of the average control count.

TABLE I

PLATE COUNTS OF MILKS TREATED WITH CRITICAL CONCENTRATIONS OF COMPOUNDS  
(Counts in thousands per ml.)

|   | Run<br>I | %    | Run<br>II | %    | Run<br>III | %   | Run<br>IV | %   | Run<br>V | %    | Average<br>of 5 runs % |
|---|----------|------|-----------|------|------------|-----|-----------|-----|----------|------|------------------------|
| Hyamine<br>1622                             | 50       | 10   | 65        | 27   | 3          | 4.5 | 3,200     | 105 | 550      | 44   | 781 76                 |
| Roccal                                      | 740      | 153  | 130       | 54   | 12         | 18  | 5,000     | 160 | 720      | 57   | 1,350 132              |
| R-2-L                                       | 560      | 115  | 88        | 37   | 8          | 12  | 3,600     | 116 | 810      | 64   | 1,014 99               |
| Emulsept                                    | 480      | 99   | 180       | 74   | 9          | 13  | 4,100     | 132 | 960      | 76   | 1,144 112              |
| Formalde-<br>hyde                           | 1        | 0.2# | 1         | 0.4# | 3          | 4.5 | 3         | 0.1 | 2        | 0.16 | 2 0.2                  |
| Average of<br>2 Controls                    | 480      | 100  | 240       | 100  | 68         | 100 | 3,100     | 100 | 1,300    | 100  | 1,027 100              |
| Control at<br>start of<br>holding<br>period | 4.8      |      | 4.1       |      | 4.2        |     | 5.6       |     | 6.2      |      | 5.0                    |

# = 250 p.p.m.

In view of the bactericidal properties of all compounds tested, it is reasonable to assume that the plate count on the control samples should in every instance be the highest in the series. As is evident from Table I, this was true in only 3 of the 5 runs. Although the original quart of milk used for each run was mixed as described, the count of Control Sample No. 1 differed significantly from that for Control Sample No. 2 in both the first and third runs. In the first run, control counts were 710,000 and 250,000 per ml. respectively, and in the third, 37,000 and 98,000 respectively. In the remaining 3, the counts showed good agreement. That the two controls in the first run differed significantly is further indicated by resazurin colour numbers (4) at the 3rd hour of 8 and 12 respectively (Table II). This is understandable since it is highly

probable that the inversion technique followed in mixing the original quart sample was inadequate; the first 100-ml. poured out might be expected to contain an unduly large proportion of the cream and accompanying bacteria. In the remaining 4 runs, each pair of tubes from the control flasks was in perfect agreement, both with resazurin and with methylene blue. The results in Table I, therefore, indicate a considerable degree of variability in the plate count, making it difficult to compare the bacteriostatic influence of the quaternary ammonium compounds.

TABLE II

REZSAURIN COLOUR NUMBER<sup>1</sup> AFTER THREE HOURS OF MILKS TREATED WITH CRITICAL CONCENTRATIONS OF COMPOUNDS

|                | 1st Run | 2nd Run | 3rd Run | 4th Run | 5th Run | Average |
|----------------|---------|---------|---------|---------|---------|---------|
| Hyamine 1622   | 5       | 2       | 4       | 18      | 6       | 7.0     |
| Roccal         | 11      | 4       | 4       | 18      | 6       | 8.6     |
| R-2-L          | 12      | 4       | 4       | 20      | 6       | 9.2     |
| Emulsept       | 12      | 6       | 4       | 22      | 7       | 10.2    |
| Formaldehyde A | 14#     | 18#     | 8       | 10      | 9       | —       |
| B              | —       | 18#     | 22#     |         |         | —       |
| Control        | 10      | 10      | 6       | 22      | 10      | 11.6    |

# = 250 p.p.m.

In view of the difficulty of presenting data on resazurin colour numbers (4) at each of twelve observation periods for five runs, it was decided to use the colour numbers at the end of the 3rd hour as the best index. These are shown in Table II. They indicate that Hyamine 1622 is the most effective in delaying reduction of resazurin, followed by Roccal, R-2-L, and Emulsept in that order. The results for formaldehyde cannot readily be compared with those from the other products. During the first run, it was noted that the formaldehyde-treated sample showed reduction to Colour No. 12 within 1 hour, although the plate count indicated fewer bacteria at the end of the holding period. Thinking the peculiar result might be due to the formaldehyde used, a parallel flask treated with a different lot of formaldehyde was included in the second run. When both lots gave identical results, calculations were checked and it was discovered that the actual concentration of formaldehyde had been 250, rather than 25, p.p.m. The greater degree of reduction attributable to the higher concentration is evident from the data of the third run, where 250 p.p.m. was compared with 25 p.p.m. Even when used in a concentration of 25 p.p.m., formaldehyde brings about a significant degree of colour change during the first hour or two.

The results of the methylene blue reduction tests (Table III) do not lend themselves to averaging, since in a number of cases reduction had not occurred at the end of 6 hours, when readings were discontinued. Nevertheless, it is

<sup>1</sup>Ranging from initial colour (0) to full pink (16) and complete reduction (24).



evident that the results for the quaternary ammonium compounds are substantially in agreement with those for resazurin. The chief point of difference concerns the formaldehyde-treated samples in the second run. Here the resazurin was completely reduced within 5 hours, while methylene blue was only three-quarters reduced after 6 hours. That formaldehyde at 250 p.p.m. may shorten the reduction time with methylene blue is indicated by the results from the 1st and 3rd runs.

TABLE III  
METHYLENE BLUE REDUCTION TIMES OF MILKS TREATED WITH CRITICAL  
CONCENTRATIONS OF COMPOUNDS

|                | 1st Run | 2nd Run | 3rd Run | 4th Run | 5th Run |
|----------------|---------|---------|---------|---------|---------|
| Hyamine 1622   | 5       | >6      | >6      | 3½      | 6       |
| Roccal         | 4½      | >6      | >6      | 4       | 6       |
| R-2-L          | 4½      | >6      | >6      | 4       | 5½      |
| Emulsept       | 4½      | 6       | >6      | 3½      | 6       |
| Formaldehyde A | 2#      | >6#     | >6      | >6      | >6      |
| B              | —       | >6#     | 3½#     |         |         |
| Control        | 4       | 5       | 6       | 3½      | 5       |

# = 250 p.p.m.

On the assumption that each of the various products should exert a similar bacteriostatic influence in each run, an attempt has been made to estimate the relative reliability of the resazurin test and the plate count by rating the various samples in each run in the order of quality as indicated by these two tests. Because the resazurin picture is complicated by the fact that formaldehyde brings about a reduction of the dye entirely independent of bacterial metabolic activity, it was necessary to exclude results from formaldehyde-treated products. As will be seen from Table IV, the ratings by the resazurin test are more consistent and uniform than are those by the plate count.

TABLE IV  
RELATIVE BACTERIOLOGICAL QUALITY OF MILKS TREATED WITH CRITICAL CONCENTRATIONS  
OF COMPOUNDS AS JUDGED BY PLATE COUNT AND RESAZURIN REDUCTION

|              | Plate Count |     |     |     |     |         | Rating by<br>Resazurin |     |     |     |     |         |
|--------------|-------------|-----|-----|-----|-----|---------|------------------------|-----|-----|-----|-----|---------|
|              | 1st         | 2nd | 3rd | 4th | 5th | Average | 1st                    | 2nd | 3rd | 4th | 5th | Average |
| Hyamine 1622 | 1           | 1   | 1   | 2   | 1   | 1.2     | 1                      | 1   | 1   | 1   | 1   | 1.0     |
| Roccal       | 5           | 3   | 4   | 5   | 5   | 4.4     | 3                      | 2   | 1   | 1   | 1   | 1.6     |
| R-2-L        | 4           | 2   | 2   | 3   | 2   | 2.6     | 4                      | 2   | 1   | 3   | 1   | 2.2     |
| Emulsept     | 2           | 4   | 3   | 4   | 4   | 3.4     | 4                      | 4   | 1   | 4   | 4   | 3.4     |
| Control      | 3           | 5   | 5   | 1   | 3   | 3.4     | 2                      | 5   | 5   | 4   | 5   | 4.2     |

## SUMMARY AND CONCLUSIONS

Each of the four quaternary ammonium compounds tested exerts a slight, but definite, bacteriostatic action when added to milk in the highest concentration which might hope to escape detection organoleptically. Nevertheless, their value for this purpose is extremely limited, for in no instance was the preservative effect remotely comparable to that exerted by formaldehyde.

The slight differences in effectiveness between the quaternary ammonium compounds were not correlated with the critical concentrations established. Emulsept, with the highest critical concentration, was least effective in inhibiting bacterial growth.

The resazurin colour number after 3 hours' incubation afforded a less variable indication of relative bacteriostasis than was furnished by the plate count. It was also somewhat more sensitive to small differences than was the methylene blue reduction time.

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NOTE: Since this paper was prepared, the abstract of a paper by DuBois and Dibble (*J. Bact.*, 1946, **51**:406) has come to our attention. Their approach to the problem was so different that comparisons cannot readily be made between their findings and ours.

## THE INCIDENCE AND GROUP OF HAEMOLYTIC STREPTOCOCCI IN A WESTERN HOSPITAL

J. A. ROMEYN, B.A., M.D.\*

*University of Alberta  
Edmonton, Alberta*

**D**URING the summer of 1945, routine nose and throat swabs were taken on "all" admissions to the Colonel Belcher Hospital in Calgary, and at monthly intervals on all staff members, that is, physicians, nurses, orderlies, and maids. "All" is in quotation marks because in a busy hospital routine it was inevitable that some cases would be missed. The attempt was made, however, to do all cases of whatever nature, including eye, ear, nose and throat. No attempt was made to classify the cases as to character of lesion or in any other way. It is probable that ninety per cent or more of admissions were done.

After sampling, the swabs were planted on sheep's blood agar plates and incubated overnight. The plates were read for the presence and numbers of haemolytic streptococci and these were grouped using Brown's modification of Lancefield's precipitation method. Sometimes replating was necessary in order to isolate.

Samples were obtained from 463 admissions to hospital during a three-month period. In 26 (5.6 per cent) of these haemolytic streptococci were found, in 4 of them haemolytic streptococci were doubtfully present, and in 433 (94 per cent) no haemolytic streptococci were found.

Of the 26 positive, 11 were grouped as A and a twelfth as probable A (a total of 12 group A); that is, of the admissions showing a positive test for haemolytic streptococci in nose and/or throat, 46 per cent or about half were group A. Also, 2.6 per cent of all admissions showed group A streptococci.

The numbers of admissions with other Lancefield groups, comprising the other half of the admissions showing a positive for haemolytic streptococci, were as follows:

| Group       | Number | Proportion of total positive for haemolytic streptococci (26) |
|-------------|--------|---|
| B           | 3      | 10%   |
| C           | 5      | 20%   |
| D           | 1      | 4%  |
| G           | 3      | 10%   |
| K           | 1      | 4%  |
| not grouped | 1      | —   |

Among the staff members, none of whom were ill, 184 individuals were swabbed one to four times, usually at about monthly intervals. The total number of samples taken was 379. Of the 184 individuals, 18 (10 per cent) showed a positive for haemolytic streptococci at some time, and of these 18, 14 (7.6 per cent of the total) showed a positive on the first sampling.

\*Formerly Captain, Royal Canadian Army Medical Corps, and Bacteriologist at the Colonel Belcher Hospital, Calgary, Alberta.

Among the 18 individuals on the staff giving a positive for haemolytic streptococci at some time, 50 samples were taken. Thirty-one (62 per cent) were positive. The samples were usually taken at four or five-week intervals, but one was taken at a two-day interval after a positive test, one at a two-week interval after a positive, and three at a three-week interval after a positive. The longest interval that an individual appeared to be a carrier occurred in an orderly who showed "a few" group A haemolytic streptococci on May 1, "occasional" on June 14, and "three colonies" on July 10, while he was negative on July 19, the last day on which a specimen was obtained. Organisms were apparently carried for up to ten weeks, then, although the data indicated that their presence at any one examination did not mean that they would necessarily be present later. Only a day-to-day study, which was not done, would give figures as to the usual length of time these organisms are carried.

Among the 18 individuals on the staff giving a positive for haemolytic streptococci at some time, 6 (one-third) showed group A at one or another sampling, 6 (one-third) did not have the organisms grouped at any time, and 7 (one-third) showed organisms in some group other than A (1B, 3C, 2G, and 1E).<sup>\*</sup> Thus, as in the patient group, half of the individuals showing haemolytic streptococci (which were grouped) had group A.

There did not appear to be any evidence that there was a significantly higher rate of carriage of group A streptococci among the hospital personnel.

In the staff group, the numbers of haemolytic streptococci present on the plates are available. The following were the results.

|                      |   |
|----------------------|---|
| "1, 2 or 3 colonies" | — 6 samples (2A, 1B, 1G, and 2 not grouped) |
| "occasional"         | — 5 samples (2A, 1G, and 2 not grouped)     |
| "moderate numbers"   | — 6 samples (1E, 5 not grouped)             |
| "few"                | — 11 samples (5A, 2C, 1E and 3 not grouped) |
| "many"               | — 3 samples (1C and 2 not grouped)          |

#### SUMMARY

1. A group of 463 admissions to the Colonel Belcher Hospital showed 5.6 per cent positive for haemolytic streptococci and 2.6 per cent positive for Lancefield group A streptococci.
2. Among 184 staff members of the hospital swabbed on one to four occasions, there were 7.6 per cent positive for haemolytic streptococci on the first swabbing. Considering both the first and later swabbings, the total positives rose to 10 per cent. Half of those grouped were group A.
3. Other Lancefield groups found were B, C, E, G and K.
4. Haemolytic streptococci may be carried in the nose and/or throat for weeks or months.
5. Among the staff positive for haemolytic streptococci, about a third were recorded as "few", a third as less than this, and a third as more.

Thanks are due to Dr. J. K. Mulloy, Superintendent of the Colonel Belcher Hospital at the time this work was done, for permission to publish these results; to Miss Betty Garbutt, for efficient technical assistance; and to Dr. E. T. Bynoe, Laboratory of Hygiene, Department of National Health and Welfare, Ottawa, for supplying the grouping sera.

*\*One individual showed group A on one occasion and group G on another.*

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## ANOTHER FAILURE IN DIPHTHERIA CONTROL

**T**WENTY years ago this fall, the Department of Public Health in the City of Toronto undertook the administration of diphtheria toxoid to children in spite of opposition from some of the medical profession who considered the undertaking an unwarranted intrusion on private practice. It is to be remembered that at that time it was considered somewhat unethical for the family physician to suggest giving toxoid to children unless it was first requested by the parents; the promotion of toxoid by the physician was liable to be misinterpreted as tinged with commercialism. Moreover, public health officials in Canada and in the United States were not in entire agreement as to the wisdom of conducting immunization programs through clinics established by departments of health.

It required only a few months before the efficacy of toxoid was demonstrated. The public quickly learned of its value, and that knowledge, coupled with the fear of diphtheria which was then killing more children from 2 to 15 years of age than any other disease, induced parents to seek, or give consent for, immunization for thousands of children in the school and other clinics. Control of diphtheria became a reality and the program for control, the administration of toxoid, was carried through largely by its own momentum.

In spite of the demonstration that toxoid could be administered most economically through public health clinics, there was still opposition to this practice from certain private physicians. In 1929-30, the Public Health Department, again after serious deliberation, yielded to that opposition and withdrew the toxoid teams in the hope and expectation that the family physician would promptly assume the responsibility for protecting the child population against diphtheria. Unfortunately, at that time the profession did not demonstrate that it could or would assume that responsibility; it did not take advantage of the opportunity which the Public Health Department afforded it. This neglect

was only too clearly evident in the very small amount of toxoid distributed in Toronto in that year. As a consequence, the Department of Health had no alternative but to re-enter the field and renew the campaign through the public health clinics. The success that has attended the efforts of the Department of Public Health in Toronto, as elsewhere, is well known. Diphtheria, in cases and deaths, has been reduced to such low numbers in the past 15 years that the public has forgotten the hazard of the disease. With the decline in diphtheria, however, with apathy replacing fear, a powerful stimulus to the administration of toxoid has been lost, so that, in recent years, the number of children immunized does not nearly approach the number of births.

There is another factor of importance. In the pre-toxoid era, when diphtheria took its heavy annual toll in cases and deaths, numerous sources of infection were spread throughout the population. Those sources of infection produced, as well as frank cases and deaths, many more very mild unrecognized cases and sub-clinical infections which induced immunity and thus gave protection against later disease. This natural immunization was continuous, so that, by adolescent age, the majority had become and were maintained immune. With the striking reduction in cases and deaths there has been a similar striking reduction in sources of infection, in mild, unrecognized cases, and in sub-clinical infections, so that the child of to-day who does not receive toxoid remains entirely susceptible to diphtheria. In the place, then, of such natural immunization (an immunization obtained at a cost of all the cases and deaths), artificial immunization must be provided for practically all children. Any lesser objective is not good enough and any lesser achievement must be considered failure. Few communities in Canada have immunized any such proportion of children; the number immunized annually falls very far short of the number of births. Failure, then, must be recognized, and should be corrected before action is forced through an increase in diphtheria which not only can be anticipated but already threatens. A new approach to the problem must be found.

In the twenty years that have elapsed since toxoid was introduced, our concept of the professional ethics in this regard has changed. Whereas, twenty years ago, it was considered somewhat unethical for the family physician to promote the administration of toxoid, the physician or paediatrician of to-day who fails to promote administration of toxoid and even to ensure that the children under his care are provided with such protection, either by himself or some other agency, that member of the medical profession must be considered guilty of culpable neglect. The family physician now has the opportunity to assume the responsibility for the better control of diphtheria which, like all preventive measures, is rightfully his and which, too, can be fulfilled better by him than by any other individual or agency. If he fails to take advantage of this opportunity, fails again to assume his responsibility, other methods and other agencies must be used. When family physicians, individually and collectively, demonstrate that they accept the responsibility and fulfil its requirements, a further and most important advance in diphtheria control will have been achieved.



## PUBLIC HEALTH IN GREAT BRITAIN

### BRITAIN'S HEALTH DURING THE WAR YEARS

JOSEPH KALMER

EVERY YEAR Britain's Ministry of Health normally publishes a report on the general state of public health. The Ministry's latest report, published recently, does not, as is usually otherwise the case, cover the preceding year, but it deals with the "six years of the grimmest struggle Britain has endured since the Conquest."

On the outbreak of hostilities, the worst fears were aroused, as it was generally assumed that the nation's health would suffer from the bad living conditions caused by the existence of a state of war and, also from the limits imposed on the possibilities of combating epidemics. Before World War II, Britain had made enormous progress in the improvement of the standard of public health, and it was therefore feared that there might be a set-back in this standard if people had to sleep, if not to live, in darkened, badly ventilated, overcrowded verminous air-raid shelters.

Moreover, in view of the fact that hospital accommodation had to be reserved for cases of injury by enemy action, these fears were not ungrounded.

Britain's health services dealt brilliantly with the situation and kept the health of the nation up to an excellent standard; in the words of Sir Wilson Jameson, the Chief Medical Officer of Britain's Ministry of Health in his first report published since 1939, they wrought "a miracle indeed." This report describes in its 280 pages the vic-

tory won by human ingenuity over the germ-carriers in air-raid shelters, jungles and deserts, as well as by the new methods in diagnosis and in the application of new remedies and the new principles of nutrition.

In this report, pride of place must be given to vital statistics, from which it can be seen that from 1941 onwards there was a rise in the birth-rate so that in 1944 this reached the figure of 17.7 per thousand—the highest figure since 1926. In this connection, the most remarkable result was the low infant mortality from disease, which was considerably reduced. Between 1938 and 1944, infant mortality decreased in Liverpool from 74 to 58 per thousand, in Nottingham from 71 to 57, and in Manchester from 69 to 54. In the coal-mining city of Newcastle-on-Tyne there was a decrease of 66 to 51 per thousand; in Birmingham, the decrease was from 61 to 42; and in Greater London, infant mortality decreased from 50 to 43 per thousand. "The rates of 23 in 1939 and 15 in 1944 recorded by Oxford demonstrate how great are the possibilities of further improvement."

Not only was there an increase in population through a rise in the birth-rate, but, also, by reason of the fact that the figures for mortality in the case of those ages most liable to fatal disease showed a decline. It is true that mortality caused by cancer, leukaemia, coronary and arterial diseases increased during the war, but this increase was kept within the limits that were to be

*The Editorial Board acknowledges its indebtedness to the United Kingdom Information Office, Ottawa, for making this article available.*

expected in the case of an aging population. On the other hand, there was a decrease in mortality from tuberculosis and pneumonia, in the latter case due to the use of the sulphonamides. Maternal mortality, stillbirths, and infant mortality were kept at a minimum by making health services, special foods and scientific preparations available to both mothers and children.

"There has been no serious epidemic save that of cerebrospinal fever," says Sir Wilson Jameson, "of which the incidence far exceeded that in World War I. The reduced case mortality in this disease implies that the new methods of treatment have been the means of saving some 15,000 lives." Moreover, in the six war-winters, three of which were, by British standards, exceedingly severe, there were only two short influenza epidemics, of a mild type.

#### *Decrease in Diphtheria*

There was a steady decrease from year to year in diphtheria cases and mortality, in connection with the Ministry of Health's immunization campaign. In 1944, diphtheria mortality had decreased to less than a third of the pre-war average; the number of notified cases decreased by 30,000 in comparison with the pre-war average, and by 6,000 as against the low record which had previously been achieved. Nevertheless, as Sir Wilson says, more children have died from these preventable diseases than from enemy air activity, and the immunization campaign is being extensively pushed forward.

In the case of tuberculosis, there was, between 1939 and 1941, first of all an increase in the number of fatal cases, but this number again decreased, only to fall once more to a very low figure, following the introduction of miniature radiography.

Not only were the available public health services extended during the

war, but they were also enriched by a whole series of new organizations. Thus the laboratory service has stood the test all along the line, in the same way as the newly introduced blood-transfusion service, which is maintained in peacetime within the scope of the activities of the Ministry of Health.

#### *No Air-Raid Shelter Epidemics*

Sir Wilson's analysis is also of interest in showing why there were no outbreaks of epidemics in the air-raid shelters, in which living conditions were anything but good. Sir Wilson attributes this circumstance to the fact that those who used the shelters had had a sunny summer in 1939, but, more especially, because they were drawn from the same locality and from the same classes of society. The air-raid shelters became focal points of pre-existing groups which, as experience showed, were less liable to infect one another than would have been the case had illness been brought in by strangers.

The ill-effects of air-raids were cancelled out by people's readiness to help one another, as well as the corporate feeling resulting therefrom, which prevented the occurrence of neurasthenia.

Finally, there is the food factor, which played a considerable part in maintaining the standard of public health. In spite of the monotony of the daily diet, the scarcity of foodstuffs, the result of rationing, in spite of increased demands on the physical strength of the general public, the authorities succeeded in maintaining the standard of food at the same high level as that of health. An essential contributory cause of this satisfactory state of affairs was the enriching of the nutritive qualities of margarine through the introduction of vitamins A and D, and of bread through a new milling process.

## BOOKS

**Studies in Heart Disease.** *New York and Ottawa: Metropolitan Life Insurance Company, 1946. 20 pages.*

THE Health and Welfare Division of the Metropolitan Life Insurance Company has published a series of charts regarding the heart-disease situation as it exists in the U.S.A. The publication is well prepared and graphically portrays the prevalence, mortality, aetiology, and prognosis, which according to the authors is more encouraging than some authorities would lead us to believe. This type of presentation should be valuable to teachers of public health or internal medicine. Copies are available from the Welfare Division of the Metropolitan Life Insurance Company, Canadian Head Office, Ottawa.

**Diagnostic Procedures and Reagents.**

*Technics for the Laboratory Diagnosis and Control of the Communicable Diseases. Second edition, completely revised. New York: The American Public Health Association, 1946. 549 pages and index. \$4.00*

IN COMPLETELY revising the first edition of this very useful book and in adding nine new chapters, all the contributors have again kept well to the fore its threefold purpose.

The subtitle, "Technics for the Laboratory Diagnosis and Control of the Communicable Diseases", indicates that it is primarily a handbook for the laboratory worker who wishes a precise description of materials and methods applicable over the wide field of bacteriology, parasitology and virus infection. Not less important is the presentation of the fundamental biology of these diseases which should give the student an understanding not easily to be obtained elsewhere of the problems involved. In addition, the epidemiologist will see how the work of laboratory and field can best be co-ordinated.

In its aim of supplying an authoritative text on this subject, the American Public Health Association has succeeded admirably. Each author is a recognized specialist. In presenting the detailed procedures of laboratory diagnosis, a critical appraisal of alternative methods and their special application is given where possible. In most instances definite recommendations based on the most recent

information are made. For trained workers approaching a field new to their experience, this is invaluable. It is hoped that by the next revision of this useful manual the typing of typhoid by means of phage will have been standardized sufficiently to be included.

With the inclusion of new chapters on the technique of blood culture, the laboratory diagnosis of helminths and protozoa, of malaria, infectious mononucleosis and the less easily distinguishable venereal infections, the scope of the book has been broadened to cover the problems of infectious diseases most common on this continent at the present time. Chapters on anthrax, glanders, trichinosis and cholera complete the volume.

Leone Farrell

**Nursing in Commerce and Industry.**

*By Bethel J. McGrath, R.N. (for the National Organization for Public Health Nursing). New York: The Commonwealth Fund, 1946. 356 pages. \$3.00.*

WHILE reading Mrs. McGrath's book, one realizes that it is based on the author's own experience and personal knowledge of the subject. In it one finds clearly illustrated answers to those difficult problems which daily confront the nurse in industry. Especially is this true in the chapter "Industrial Organization and the Nurse".

Established industrial nurses as well as those beginning a service will find most valuable for reference those chapters dealing with communicable and industrial diseases, nutrition, mental hygiene, records, reports and equipment.

The outline for a Manual of Policies and Procedures is of particular interest and will be welcomed by the many nurses who are endeavouring to prepare a manual for their own company.

The extensive list of references at the end of each chapter is an index of the amount of work Mrs. McGrath has done in preparing a book which is outstanding.

"Nursing in Commerce and Industry" will be valuable as a text for nurses taking special lectures in industrial nursing at universities as well as for nurses already employed in industry.

S. A. Wallace

**A Handbook of Social Medicine.** By Frederick Grundy. Luton, England: Gibbs, Mafjorth & Co. (Luton) Ltd., 1946. 179 pages. 8/6.

THIS BOOKLET has been designed as an introductory handbook on public health for midwives but it is suitable also for public health nurses, social workers, and medical students. It is written for and about the British public health system and thereby loses most of its attraction as a handbook for Canadians. It will be of interest to public health people in this country who wish to compare the laws and administrative organization of England with those that exist in Canada.

Apart from the discussion of the health department organization in local and central governments, there are chapters on Social Medicine and the Environment, covering the physical elements, the social elements, and medical services; The Prevention and Control of Infectious Diseases, The Arithmetic of Disease, and Midwifery.

The book is well prepared and most of the important aspects of public health as it affects the midwife are presented in short, descriptive paragraphs. Graphs and charts are plentiful and easily understood, and several photographs add to the general attraction of the book. A handbook of this type, written for Canadian health workers, would be in great demand.

**Youth and Health.** Prepared for the Canadian Youth Commission. Toronto: The Ryerson Press, 1946. 93 pages. Cloth \$1.25; paper \$1.00.

THE CANADIAN Youth Commission, "a private and independent body established in April, 1943, with the avowed objects of studying the main problems of young people from 15 to 24 years of age, of drafting reports and recommendations based on these studies, and of promoting the acceptance of these recommendations by governments and private agencies having responsibility in this field", has published a report in a ninety-page booklet "Youth & Health, A Positive Health Programme for Canada".

The report is the work of the Commission's Committee on Health headed by Dr. G. B. Chisholm. It presents the Committee's views of positive health as having the broadest interpretation of health. Health is no longer just

the absence of disease, but any factor which may affect the general well-being of a person is stated to be the concern of the health authority. The Committee visions the health authorities working in close co-operation with economists, sociologists, town planners, engineers, educationists and law-makers and any other agency concerned with the welfare of humanity.

Youth organizations throughout the country were requested to study the problems of health facilities in Canada and submit reports to the Committee. These reports are included in the booklet, some in detail, others in summary. The Committee shows that most of the reports agree in substance with their views.

While there are no radically new viewpoints discussed in the report, it is of interest to see that the youth of Canada, represented by the youth organizations participating, has studied the problem of national health so thoroughly and come to such an unanimity of opinion as to Canada's health requirements.

J. H. Baillie

#### BOOKS RECEIVED

**Toward Mental Health.** By George Thorman (Public Affairs Pamphlet No. 120). The Canadian Forum Book Service, 16 Huntley Street, Toronto, 1946. 32 pages. 15c.

**Lectures on Preventive Medicine.** By Harvey Sutton, O.B.E., M.D., D.P.H., B.Sc., F. Roy. San. Inst., F.R.A.C.P., Professor of Preventive Medicine and Director of the School of Public Health and Tropical Medicine, University of Sydney. Sydney: Consolidated Press Ltd., 168-174 Castleragh Street, 1944. 658 pages. 27/6.

**On the State of the Public Health during Six Years of War.** Report of the Chief Medical Officer of the Ministry of Health, 1939-45. London: His Majesty's Stationery Office, 1946. 280 pages. 5s. net.

**Preventive Medicine and Public Health.** By Wilson G. Smillie, M.D., D.P.H., Sc.D. Toronto: The Macmillan Company of Canada Limited, 1946. 607 pages. \$6.00.

**Water Bacteriology.** By Samuel C. Prescott, B.S., Sc.D., Charles-Edward Winslow, S.M., Dr.P.H., and MacHarvey McCrady, B.S. 6th ed., 1946. New York: John Wiley & Sons, Inc. 368 pages. \$4.50.







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Number 12

The Tuberculosis Control Program in Halifax

C. J. W. BECKWITH

Professional Growth in Public Health Nursing

DOROTHY E. TATE

Quaternary Ammonium Compounds in Milk

C. K. JOHNS and H. V. PRITCHARD

Haemolytic Streptococci

J. A. ROMEYN

The Real Housing Problem

FRED C. AUSTIN



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\*Dickinson, R. L.: J. A. M. A. 123:490, June 16, 1945.

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## Can you answer these questions about **DIABETES?**

### **Q. Is diabetes increasing or decreasing?**

**A.** If present trends continue, the number of diabetics in this country will increase by 18% from 1940 to 1950, largely because more people live to reach middle and old age. Fortunately, doctors today can help control the disease; in fact, nearly all diabetics aided by modern medical science can lead full, active lives. Since the discovery of insulin, the average length of life of diabetics has increased greatly.

### **Q. What studies hold hope for the future?**

**A.** Medical science knows more about diabetes than ever before, and constant research on new types and more effective combinations of insulin is being carried on. A chemical compound, alloxan, which can produce experimental diabetes in animals, has provided a new means for studying the disease. Further hope for progress lies in new discoveries about the utilization of sugar in the body.

### **Q. Does diabetes have warning symptoms?**

**A.** There are usually no symptoms in early diabetes, but it can be detected by the presence of sugar in the urine. Periodic health examinations, including urinalysis, are the most effective way of discovering the disease early, when it is easiest to control. Once the disease has developed, definite symptoms appear, such as constant hunger, excessive thirst, loss of weight, and continual fatigue.

### **Q. Which people are most likely to get diabetes?**

**A.** Those who are overweight, those who are between the ages of 40 and 60 (especially if they are stout), and those who have a diabetic in the immediate family.

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### **Q. How can medical science help the average diabetic?**

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*Diet, insulin, and exercise* are the major factors in controlling diabetes. Successful treatment depends upon the closest co-operation between doctor and patient in keeping these factors in proper balance.

The physician determines whether the patient needs insulin and how much, as well as the amount and kinds of food that best meet his needs. The patient learns how to live with the disease, and conscientiously follows the doctor's instructions—thus guarding against complications that affect the arteries, heart, kidneys, and eyes.

Even with diabetes, it is usually possible to enjoy a nearly normal life. For more detailed information about the disease, send for Metropolitan's

free booklet entitled "Diabetes." Address Booklet Dept. 126J, Canadian Head Office, Ottawa.

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